

What is claimed is:

1 1. A method for detecting an abnormality of an optical module  
2 comprising the steps of:

3 (a) detecting a value of a current flowing through a specified  
4 spot of the optical module;

5 (b) holding the detected value of the current in a memory;

6 (c) detecting a value of a current flowing through the specified  
7 spot at every predetermined time;

8 (d) obtaining a differential value between the value of the  
9 current held in the memory and the value of the current newly detected;  
10 and

11 (e) generating alarm signal indicating a necessity of  
12 preventive maintenance when the obtained differential value exceeds  
13 a predetermined threshold value.

1 2. The method for detecting an abnormality of an optical module  
2 according to claim 1,

3 wherein the value of the current flowing through the specified  
4 spot is a value of a current in a power line for supplying power  
5 to the optical module.

1 3. The method for detecting an abnormality of an optical module  
2 according to claim 1,

3 wherein the value of the current flowing through the specified  
4 spot is a monitor current value of an optical output of the optical  
5 module.

1 4. The method for detecting an abnormality of an optical module  
2 according to claim 1,  
3 wherein the value of the current flowing through the specified  
4 spot is a value of a bias current of the transmission light source.

1 5. The method for detecting an abnormality of an optical module  
2 according to claim 1,  
3 wherein the value of the current hold in the memory is a value  
4 of a current flowing through the specified spot at the start time  
5 of the use of the optical module.

1 6. The method for detecting an abnormality of an optical module  
2 according to claim 1,  
3 wherein the value of the current held in the memory is  
4 overwritten to the value of the current which is newly detected in  
5 the specified spot when a differential value is obtained.

1 7. The method for detecting an abnormality of an optical module  
2 according to claim 1,  
3 wherein the detected value of the current flowing through the  
4 specified spot of the optical module is an average value of currents  
5 for the predetermined time.

1 8. A method for detecting an abnormality of an optical module  
2 comprising the steps of:

3 (a) detecting a value of a current flowing through a specified  
4 spot of the optical module;

5 (b) holding the detected value of the current in a memory;

6 (c) newly detecting a value of a current flowing through the  
7 specified spot at every predetermined time;

8 (d) obtaining a ratio of a differential value between the value  
9 of the current held in the memory and the value of the current newly  
10 detected to the value of the current held in the memory; and

11 (e) generating alarm signal indicating a necessity of  
12 preventivemaintenancewhen the obtainedratio exceeds a predetermined  
13 threshold value.

1 9. An apparatus for detecting an abnormality of an optical module  
2 comprising:

3 a current detector which detects a value of a current flowing  
4 through a specified spot of said optical module;

5 a memory which holds the value of the current detected by said  
6 current detector;

7 an arithmetic circuit which obtains a differential value  
8 between the value of the current held in said memory and a value  
9 of a current newly detected by said current detector; and

10 an alarm circuit which generates alarm signal indicating a  
11 necessity of preventive maintenance when the differential value  
12 obtained by said arithmetic circuit exceeds a predetermined threshold  
13 value.

1 10. The apparatus for detecting an abnormality of an optical module  
2 according to claim 9,

3 wherein the value of the current flowing through the specified  
4 spot is a value of a current in a power line for supplying power  
5 to said optical module.

1 11. The apparatus for detecting an abnormality of an optical module  
2 according to claim 9,  
3 wherein the value of the current flowing through the specified  
4 spot is a value of a current of a transmission light source.

1 12. The apparatus for detecting an abnormality of an optical module  
2 according to claim 9,  
3 wherein the value of the current held in said memory is a value  
4 of a current flowing through the specified spot, the value of the  
5 current being detected by said current detector at the start time  
6 of the use of said optical module.

1 13. The apparatus for detecting an abnormality of an optical module  
2 according to claim 9,  
3 wherein said current detector detects a value of a current  
4 flowing through the specified spot at every predetermined time, and  
5 sends out the detected value of the current to said memory.

1 14. The apparatus for detecting an abnormality of an optical module  
2 according to claim 9,  
3 wherein said memory includes a first memory and a second memory,  
4 said first memory receives and holds a value of a current from  
5 said current detector, and sends out the value of the current held  
6 until then to said second memory,  
7 said second memory holds the value of the current sent from  
8 said first memory, and  
9 said arithmetic circuit obtains a differential value between  
10 the values of the currents held in said first memory and said second

11 memory.

1 15. The apparatus for detecting an abnormality of an optical module  
2 according to claim 9,

3 wherein said current detector detects an average value of  
4 currents flowing through the specified spot for a predetermined time  
5 as a value of a current.

1 16. An apparatus for detecting an abnormality of an optical module  
2 comprising:

3 a current detector which detects a value of a current flowing  
4 through a specified spot of said optical module;

5 a memory which holds the past value of the current detected  
6 by said current detector;

7 an arithmetic means which obtains a ratio of a differential  
8 value between said past value held in said memory and a value of  
9 a current detected at present by said current detector; and

10 alarming means which generates alarm signal indicating a  
11 necessity of preventive maintenance when the ratio obtained by said  
12 arithmetic means exceeds a predetermined threshold value.